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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/887,531

06/22/2001

David G. Schmidt

5792

7590

02/06/2004

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EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1746

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/887,531

Applicant(s)

SCHMIDT, DAVID G.

Examiner

Jonathan S. Crepeau

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1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 14-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-8, 10-13, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 3 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I, claims 1-13, 25, and 26 in the paper of November 24, 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Objections***

2. Claim 8 is objected to because of the following informalities: Claim 8 depends from claim 8, which is a typographical error and should be amended to depend on claim 7. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4-6, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Gutbier et al (U.S. Patent 3,932,600). Regarding claims 1 and 2, the reference teaches a

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composition comprising cobalt oxide, aluminum, magnesium, and sodium chloride (i.e., an electrolyte) (see col. 2, lines 17-31). Regarding claim 1, the sodium chloride may be in aqueous solution (see col. 2, line 45). Regarding claim 4, the sodium chloride is present in an amount of 14 grams per 0.5 L of water (i.e., 0.48 molar) (see col. 4, line 18). Regarding claim 5, the cobalt oxide is in solution (see col. 2, line 19). Regarding claim 6, the cobalt oxide is admixed with the aluminum (see col. 2, line 19). Regarding claim 25, the composition may be used in a hydrogen generator in conjunction with a hydrogen fuel cell (see abstract; col. 1, line 11 et seq.).

Thus, the instant claims are anticipated.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 8, 10-13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutbier et al. in view of Nagira et al (U.S. Patent 4,752,463).

Gutbier et al. is applied for the reasons stated above. However, the reference does not expressly teach that the aluminum is alloyed with at least one "high electron mobility component" (e.g., Sn) as recited in claims 7 and 12, or the weight percentage of such alloying

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component, as recited in claim 13. The term "high electron mobility component" is accorded the definition given on page 15 of Applicant's specification and is not considered to encompass the magnesium disclosed by Gutbier et al.

Nagira et al. is directed to a method of producing hydrogen using an alloy consisting essentially of 5-50% tin and the balance aluminum (see abstract).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the Al/Sn alloy of Nagira et al. in the composition of Gutbier et al. In column 1, line 39, Nagira et al. teach the following:

**It is therefore an object of the present invention to provide a cheap hydrogen-producing material that makes it possible to produce hydrogen gas of a high purity at a high efficiency.**

**Another object of the present invention is to provide a method for producing hydrogen at a low cost and at a high efficiency without use of a large quantity of electric or thermal energy.**

Accordingly, the artisan would be motivated to use the Al/Sn alloy of Nagira et al. in the composition of Gutbier et al. in hopes of producing hydrogen gas of a high purity at a high efficiency.

#### *Allowable Subject Matter*

7. Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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8. The following is a statement of reasons for the indication of allowable subject matter:

Claims 3 and 9 are directed to compositions which comprise at least one transition metal compound, aluminum or an alloy thereof, and a solution comprising a base which is selected from any of several hydroxides, carbonates, CaO, ammonia, or combinations thereof. Gutbier et al., the closest prior art, teach a transition metal compound admixed with aluminum, and a solution of a chloride compound. However, the reference fails to teach or fairly suggest any one of the basic species recited in instant claims 3 and 9. The reference discusses bases in the discussion of the prior art, but emphasizes the disadvantages of such bases (see col. 1, line 49 et seq.). Accordingly, an artisan would not be motivated to incorporate a base into the inventive composition of Gutbier et al. Thus, claims 3 and 9 contain allowable subject matter.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Andersen et al (6,506,360), which is directed to a method of making hydrogen by reacting aluminum and water in the presence of sodium hydroxide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

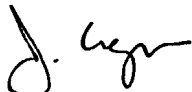
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the

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organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

A handwritten signature in black ink, appearing to read 'J. Crepeau', with a stylized flourish at the end.

Jonathan Crepeau

Patent Examiner

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January 29, 2004